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THE GENUS SPHENOPHOLIS.

F. LAMSON-SCRIBNER.

THE grasses which for nearly seventy years have been referred to the *Eatonia* of Rafinesque, constitute a small genus, but the characters which serve to distinguish it, the history of its development and relations with other genera, the remarkable inter-relation of its species and their geographical distribution are all points of more than usual interest. The species have been classified by botanists under seven genera and the seven species we here recognize have been cited under more than forty names. Michaux in 1803 placed his one species in *Aira*, and Sprengel, Muhlenburg, Elliott and some other authors of that period followed him. Desvaux (1808) referred the species to *Airopsis*, while De Candolle in 1813, and Torrey in 1824, referred them to *Koeleria*. Trinius placed them in *Trisetum* in the section *Colobanthus*, which Spach took up later (1846) as a genus, but too late for its adoption, the name having already been used by Bartling (1800). In the same year (1830) Kunth, recognizing the generic value of the characters present in the species, established upon Michaux's *Aira obtusata* the genus *Reboulea*, renaming Michaux's plant *Reboulea gracilis*. Gray took up *Reboulea* in the first edition of his Manual (1848), but in the meantime Endlicher (1837), who doubtless was aware that the name *Reboulea* had been applied to a genus of hepatics ten years prior to its adoption by Kunth, was induced for some reason, to refer the species to *Eatonia* of Rafinesque. This name was adopted by Gray in the second edition of his Manual (1856) and by all subsequent authors. After a careful reading of Rafinesque's diagnosis of

his genus *Eatonia* and the description of the species which he names as the type — *Eatonia purpurascens* — no one can believe that Rafinesque's *Eatonia* is identical with that of Endlicher. Rafinesque says of his genus that it is "intermediate between *Holcus*, *Aira* and *Panicum*.¹ He describes the spikelets as being polygamous, with one hermaphrodite and one male flower, the latter enclosed by the third glume, the first glume being "*plus petite*," characters which suggest *Panicum*. His type species is described as being 2 to 4 feet high with ciliate sheaths, divaricate, flexuose panicles, purple spikelets and its habitat the salt marshes of New York. There is no *Eatonia* as we have come to understand that genus, with divaricate purple panicles and none, so far as I am aware, which occur upon saline marshes about New York or elsewhere. We must regard the *Eatonia* of Endlicher, which he clearly describes, as an error in determination and as quite distinct from the *Eatonia* of Rafinesque published eighteen years earlier. This name as well as *Reboulea* and *Colobanthus* being thus unavailable our little genus whose species have been shut out from *Aira*, *Trisetum* and *Koeleria*, is without a name and is apparently homeless, for authors differ as to its position in the grass family, earlier botanists having associated it with the *Aveneae*, while those of more recent times have assigned it to the *Festuceae*, following the classification proposed by Kunth who allied his *Reboulea* with *Phippsia* and *Catabrosa*.

The following is a brief summary of the history or development of the genus: —

Michaux, in 1803, described one species under the name of *Aira obtusata*, giving as the habitat "in aridis Carolina ad Floridam." His description is very brief and admits of being either *Eatonia nitida*,

¹ **Eatonia** Rafin. Original description: "EATONIA. (Graminées.) Fleurs polygames mâles paniculées. Glume biflore, trivalve; valves inégales, mutique, sur un rang, l'extérieure embrassante, plus petite; l'intérieure plus grande. 2 fleurs entre l'intérieure et la médiane, une hermaphrodite et une mâle. Fleur hermaphrodite enveloppée par la grande valve; glumelle à 2 valves égales, plus courte que la glume. 3 étamines. 2 styles fimbriés. Fleur mâle embrassée par la glume médiane, glumelle à une seule valve embrassante. Beau genre intermédiaire entre les genres *Holcus*, *Aira* et *Panicum*."

Type, *E. purpurascens*. Glabre, gaines ciliées, ligules barbuës, feuilles étroites, panicule divariquée, flexueuse; glumes ovées sans nervure, acuminées, l'extérieure carinée. Glumelles hermaphrodites, elliptiques obtuses, lisses; glumelle mâle, ovale, aigue, bianguleuse. Belle plante de 2 à 4 pied de haut, dans les marais maritimes de New-York, etc. Fleurs pourprées. C'est l'*Holcus striatus* de quelques botanistes américains, mais nullement celui de Willdenow, etc. Est-ce aussi le *Koelera pensylvanica* Dec.? et l'*Airopsis obtusa* de Romer? Mais c'est certainement un genre distinct.

(Rafinesque in Journ. d. Phys. 89: 104, 1819.)

filiiformis or, as now understood, either the glabrous or pubescent form of *obtusata*. The latter (pubescent) form is by far the more common in the region specified.

Sprengel in 1807 published *Aira pallens* and *Aira nitida*. In 1810 he named the latter species *Aira pennsylvanica*. In 1813, Muhlenburg published *Aira truncata* based upon *Aira obtusata* of Michaux and in 1817 he published *Aira pallens*, apparently based upon the grass which has been more recently known as *Eatonia pennsylvanica* in which the second floret is awned and doubtless the same as *Aira pallens* Sprengel. Muhlenberg notes that awnless forms occur and evidently referred to these in his catalogue (1813) under the name of *Aira pallens mutica*. *Avena palustris* of Michaux, Muhlenburg treats as a distinct species.

Torrey (1824) describes two species and one variety under *Koeleria*:

1. *Koeleria pennsylvanica*, based upon De Candolle's *Koeleria pennsylvanica* with *Aira mollis* Muhl. and *Aira pennsylvanica* Spr. as synonyms. The grass described is *Eatonia nitida*.

2. *Koeleria truncata*, based upon *Aira truncata* Muhl. which is the *Aira obtusata* of Michaux. The grass described is the *Eatonia pennsylvanica* of A. Gray. The subspecies *major*, of Torrey, is certainly valid and includes *Eatonia intermedia* of Rydberg.

Elliott in his Sketch of the Flora of South Carolina and Georgia, 1816, describes two species, *Aira obtusata* Mx. and *Aira mollis* Muhl. Under the latter, he describes as a variety, *Eatonia filiiformis* Vasey, but does not name it.

Trinius, in 1830, describes two species under *Trisetum* (Sect. *Colobanthus*), namely: *T. pennsylvanicum*, based upon *Aira pennsylvanica* Sprengel and *Trisetum lobatum*, which is *Eatonia obtusata* (Mx.).

Endlicher in 1837 takes up *Eatonia* of Rafinesque for *Reboulea* of Kunth (1830) and cites *Aira obtusata* Michx. as representing the genus.

Desvaux, Journ. Bot. 1808, refers *Aira obtusata* of Michaux to *Airopsis*.

Kunth in 1830 establishes *Reboulea* as a new genus to include *Aira obtusata* Mx. giving the latter a new name, *Reboulea gracilis*.

Gray in the first edition of his Manual (1848) takes up *Reboulea* of Kunth and describes two species with one variety; 1. *Reboulea pennsylvanica*, describing the grass now generally recognized as *Eatonia pennsylvanica*, but citing *Koeleria pennsylvanica* DC., which

is based upon *Aira pennsylvanica* of Sprengel, as a synonym, with the variety, *major* (*Koeleria truncata major* of Torrey). 2. *Reboulea obtusata*, based upon *Aira obtusata* Mx. In the second edition of the Manual, Gray refers these species to *Eatonia* following Endlicher who erroneously took up Rafinesque's name.

Chapman in 1860 describes two species with one variety — *Eatonia obtusata* (Mx.) and *Eatonia pennsylvanica*, citing *Aira mollis* Muhl. as a synonym which is the plant he describes, with the variety *filiformis*.

In 1886 Vasey raised Chapman's *E. pennsylvanica filiformis* to the rank of a species and published as new *Eatonia Dudleyi*, which is identical with *E. pennsylvanica* of Chapman and *Aira nitida* and *Aira pennsylvanica* of Sprengel, *Aira mollis* of Muhlenberg being the same.

Fournier in 1881 published one Mexican species which he named *Eatonia densiflora*. This is probably *Eatonia obtusata* with closely pubescent sheathes.

Beal, in 1896, describes six species as being North American raising *Eatonia pennsylvanica longiflora* Vasey to specific rank and making one new species, *Eatonia hybrida*, based upon what he supposed was Vasey's so-called hybrid between *Eatonia pennsylvanica* and *Trisetum palustre*, the *Eatonia pallens* of Scribner and Merrill. The grass he really described is an awned state of *Eatonia filiformis* (*E. aristata* Scribn. & Merrill.)

Scribner and Merrill (1900) published *Eatonia pallens* based upon *Aira pallens* of Sprengel and two species regarded as new, viz: *E. pubescens* and *E. aristata*, the first a pubescent subspecies of *Eatonia obtusata*, the second an awned state of *E. filiformis*.

Britton in his Manual of the Flora of N. Am. (1901) describes five species: *Eatonia obtusata* (Mx.) A. Gray, *E. pubescens* Scribn. & Merrill, *E. pennsylvanica* (DC.) A. Gray, *E. nitida* (Sprengel) Nash and *E. glabra* Nash.

Small, in his Flora of the Southern United States (1901) has seven species, those described by Britton and *E. filiformis* (Chapm.) Vasey, and *E. longiflora* (Vasey) Beal.

Recently (1905) Rydberg published *Eatonia robusta* (Vasey), based upon *E. obtusata robusta* Vasey, and *Eatonia intermedia* which is apparently the same as *Eatonia pennsylvanica major* (Torr.) Gray. *Eatonia robusta* has no valid characters to separate it from *Eatonia obtusata*.

Bentham in 1883 (Gen. Pl. 3:1184) recognized two species with possibly a third, while Hackel in Engl. & Prantl, Nat. Pflanzenfam. (1887) gives the number of species as two.

As already pointed out the genus has no available name and I venture to propose the name *Sphenopholis*, or *wedge-scale*, referring to the wedge-shaped second glume of some of the species when viewed from the side. I have reduced the thirteen species published under *Eatonia* to four with five subspecies.

Eatonia obtusata (Mx.) Gray	}	Sphenopholis <i>obtusata</i> (Mx.)	
“ pubescens, S. & M.		= subspecies <i>lobata</i> (Trin.)	
“ robusta, Rydb.		<i>pubescens</i> (Scribn. & Merr.)	
“ densiflora Fourn.			
“ pennsylvanica A. Gray	}	Sphenopholis <i>pallens</i>	
“ pallens, S. & M.		•(Spreng.)	
“ longiflora Vasey.		= subspecies <i>major</i> (Torr.),	
“ intermedia Rydh.		<i>longiflora</i> (Vasey.)	
“ nitida Nash.	}	= Sphenopholis <i>nitida</i> (Spr.)	
“ glabra Nash.			subspecies <i>glabra</i> (Nash.)
“ Dudleyi,	}	= Sphenopholis <i>filiformis</i> (Chapm.)	
“ filiformis Vasey,			
“ hybrida Beal,			
“ aristata S. & M.			

Three species of *Trisetum* are transferred to the genus *Sphenopholis*, viz. *T. interruptum* Buckl. with subspecies *californica* (Vasey), *Trisetum Hallii* Scribn. and *Trisetum palustre* Trin. with new subspecies *flexuosa*, making in all seven species with seven subspecies.

I have referred to the close relationship of the genus *Eatonia* with *Trisetum* in more than one publication and a recent careful examination of the ample material in the National and Gray Herbaria has only served to convince me that Trinius was correct in referring the species to the *Aveneae*. With one exception none of the species is entirely awnless and the only constant character which serves to separate them from *Trisetum* is the articulation of the rachilla below the spikelet. This character is especially pronounced in *S. interruptum* and *S. Hallii*. I regard this character of good generic value; in this case at least it brings together a very natural group of species. All the species vary from wholly glabrous to more or less densely pubescent; there is a general resemblance throughout in the characters of the inflorescence especially in the details; in the dissimilarity of the outer glumes

and in the lemmas and paleas, the latter being always hyaline and strongly narrowed towards the base, and especially is there a common resemblance in the characters of the caryopsis. While the glumes and first floret are persistent, the second floret readily falls off at early maturity and so pronounced is this character that species have been described from herbarium material as having one-flowered spikelets. Kunth describes thus *Reboulea gracilis*.

The characters of the genus *Sphenopholis* as here constituted are the same as those assigned to *Eatonia* by Endlicher, Benthams and others excepting those of the lemmas or flowering glumes which are either awnless or awned below the entire or two-toothed apex, awn straight or divergent rarely twisted and geniculate. As here presented the genus stands, as follows:

Sphenopholis, new name.

Reboulea Kunth. Rev. Gram. 1:341, Pl. 84, 1830, not *Reboulea* Raddi 1820.

Colobanthus Trin (as a Sect. *Trisetum*.) 1830. Spach as a genus, Suites, Buff, 13:163, 1846, not Bartl. 1830.

Eatonia Rafin.; Endl. Gen. Pl. 99, 1837, not Rafinesque, 1819.

Gen. Char.: Spikelets small, 2-3-flowered, paniculate; rachilla continued above the upper floret into a slender naked or pilose stipe, articulated between the florets and below the spikelets; flowers hermaphrodite. Glumes 2, dissimilar, persistent, membranaceous, the second becoming chartaceous or subcoriaceous in fruit, the first narrow 1- or rarely 3-nerved, the second much broader, usually broadly obovate, 3- or rarely 5-nerved; lemmas rather rigid, chartaceous, 3- rarely 5-nerved, nerves obscure, rounded on the back below compressed near the apex, obtuse, acuminate, entire or 2-toothed, awnless or awned just below the apex; awn straight or divergent, rarely twisted and geniculate; palea hyaline, shorter than the lemmas, narrowed towards the base, 2-nerved, usually somewhat 2-lobed and 2-toothed at the apex. Stamens 3. Styles very short; stigmas plumose. Caryopsis linear or oblong, more or less compressed, abruptly narrowed above into a short beak, glabrous, exsulcate, loosely enclosed within the rigid fruiting glume, free.

Slender grasses with usually flat leaves and narrow, often densely flowered panicles.

Allied to *Trisetum*.

Species 7. All North American. Type, *Sphenopholis obtusata* (*Aira obtusata* Michx.).

KEY TO THE SPECIES.

- 1 Spikelets awnless, rarely with the second floret short-awned, glumes very dissimilar 2
- 1 Spikelets always awned, glumes not very unlike 5
- 2 Leaves very narrow or involute-filiform, basal ones often equaling the culm, second glume broadly truncate . . . *S. filiformis*.
- 2 Leaves flat, much shorter than the culm 3
- 3 Panicle lanceolate or oblong, spikelets crowded, second glume as broad as long, somewhat cuculate in fruit . . . *S. obtusata*.
- 3 Panicle lax, branches more or less spreading, at least when in flower 4
- 4 Glumes nearly equal in length, the second very broadly obovate obtuse, florets obtuse, the second one very scabrous all over, . . . *S. nitida*.
- 4 Glumes unequal, first shorter than second, florets mostly acute, glabrous *S. pallens*.
- 5 Panicle lax, spikelets not crowded, first floret usually awnless . . . *S. palustris*.
- 5 Panicle narrow spiciform more or less interrupted below . . . 6
- 6 Glumes broadly oblanceolate, first floret with a short straight terminal awn *S. Hallii*.
- 6 Glumes narrowly oblanceolate, awns all alike . . . *S. interrupta*.

SUBSPECIES.

- S. obtusata lobata* (*Trisetum lobatum* Trin.). Sheathes and leaves scabrous; panicle cylindrical, spikelets crowded on the short oppressed branches.
- S. obtusata pubescens* (*Eatonia pubescens* Scribn. & Merr.). Sheaths and leaves softly pubescent.
- S. nitida glabra* (*Eatonia glabra* Nash.). Sheathes and leaves glabrous or merely scabrous.
- S. pallens major* (*Koeleria truncata major* Torr.). Panicles narrowly lanceolate or oblong, rather densely flowered, first glume linear nearly equalling the second.
- S. palustris flexuosa* n. subsp. Panicle lax the flexuose branches spreading, both lemmas awned.
- S. interrupta californica* (*Trisetum californicum* Vasey). Plants pubescent throughout even to the glumes.

LIST OF THE SPECIES WITH THEIR SYNONYMS.

1. **Sphenopholis obtusata** (Mx.) Scribn. n. comb.*Aira obtusata* Michx. 1803.*Airopsis obtusata* Desv. 1808.*Aira truncata* Muhl. 1817.*Koeleria truncata* Torr. 1824 (Excl. descr.).*Koeleria paniculata* Nutt. 1818.*Reboulea gracilis* Kunth. 1840.*Reboulea obtusata* Gray, 1848.*Eatonia obtusata* Gray, 1856 (Excl. char.).

Southern New England to Florida and westward to Illinois and Texas.

1a. **Sphenopholis obtusata pubescens** (S. & M.) Scribn. n. comb.*Eatonia pubescens* Scribn. & Merrill, 1900.

Distribution with the species.

1b. **Sphenopholis obtusata lobata** (Trin.) Scribn. n. comb.*Trisetum lobatum* Trin. 1830.*Eatonia densiflora* Fourn. 1881.*Eatonia obtusata* Gray (excl. syn.).*Eatonia robusta* (Vasey) Rydb.

Maine to Florida and westward to Washington, California. Mexico and Canada.

2. **Sphenopholis filiformis** (Chapm.) Scribn. n. comb.*Eatonia pennsylvanica filiformis* Chapm. 1860.*Eatonia filiformis* Vasey, 1886.*Eatonia hybrida* Beal, 1896.*Eatonia aristata* Scribn. & Merrill, 1900.

South Carolina to Florida and westward to Mississippi and Texas.

3. **Sphenopholis nitida** (Spr.) Scribn. n. comb.*Aira nitida* Spr. 1807.*Aira pennsylvanica* Spr. 1810.*Aira mollis* Muhl. 1817.*Koeleria pennsylvanica* DC. 1813.*Trisetum pennsylvanicum* Trin. 1830.*Eatonia pennsylvanica* Gray, 1856. (Excl. descr.)*Eatonia pennsylvanica* Chapman, 1860.*Eatonia Dudleyi* Vasey, 1886.*Eatonia nitida* Nash. 1895.

um/

Southern New England, New York to North Dakota and southward to South Carolina, Florida, Mississippi and Texas. Canada.

- 3a. ***Sphenopholis nitida glabra*** (Nash.) Scribn. n. comb.

Eatonia glabra Nash. 1901.

Southern New York, Illinois, to South Carolina and Tennessee.

4. ***Sphenopholis pallens*** (Spr.) Scribn. n. comb.

Aira pallens Spr. 1807.

Aira pallescens Kitaib. ? 1817.

Koeleria truncata Torr. 1824. (excl. syn.)

Reboulea pennsylvanica A. Gray, 1848. (Excl. syn.)

Eatonia pennsylvanica A. Gray, 1856. (Excl. syn.)

Eatonia pallens Scribn. & Merrill, 1900.

Maine to North Carolina and westward to Wisconsin, Kansas and Texas.

- 4a. ***Sphenopholis pallens longiflora*** (Vasey) Scribn. n. comb.

Eatonia pennsylvanica longiflora. Vasey, 1894.

Eatonia longiflora, Vasey in Beal. 1896.

Texas and ? Louisiana.

- 4b. ***Sphenopholis pallens major*** (Torr.) Scribn. n. comb.

Koeleria truncata major Torr. 1824.

Reboulea pennsylvanica major Gray. 1848.

Reboulea gracilis Kunth. 1830. (?)

Eatonia intermedia Rydb. 1905.

Maine to Washington south to Pennsylvania, Illinois, Colorado, New Mexico and Arizona.

5. ***Sphenopholis palustris*** (Michx.) Scribn. n. comb.

Avena palustris Michx. 1803.

Aira pallens aristata Ell. 1816.

Trisetum palustre Trin. 1830.

Trisetum ludovicianum Vasey, 1885.

Massachusetts southward to Tennessee, Louisiana and Georgia. Canada to latitude 59°.

- 5a. ***Sphenopholis palustris flexuosa*** Scribn. n. subsp.

No. 274 A. Commons, from Delaware, 1874, and

No. 4800 A. A. Heller, from Penna. both in the National Herbarium.

6. ***Sphenopholis interrupta*** (Buckl.) Scribn. n. comb.

Trisetum interruptum Buckl. 1863.

Trisetum elongatum Beal, 1896, not Kunth. 1829. (Err. determ.)

Southwestern Colorado, Texas, Arizona and northern Lower California.

- 6a. **Sphenopholis interrupta californica** (Vasey) Scribn. n. comb.

Trisetum californicum Vasey, 1893.

Texas.

7. **Sphenopholis Hallii** Scribn. n. comb.

Trisetum Hallii Scribn. 1884.

Texas.

U. S. DEPARTMENT OF AGRICULTURE,

Bureau of Plant Industry, Washington, D. C.

SOME MAINE RUBI. THE BLACKBERRIES OF THE KENNEBUNKS AND WELLS.—I.

W. H. BLANCHARD.

IN this and in papers to follow are given the results of a careful and persistent study of the blackberries of Kennebunk, Kennebunkport and Wells, three adjoining sea-coast towns in Southwestern Maine, well-known summer resorts. The time given to this study was two weeks in August, 1904, and all the time from June 24 till Sept. 10, 1905, except one week in August spent in Connecticut. Kennebunk village was headquarters, and the steam and electric railroads made it comparatively easy to reach all parts of the section.

Much of the soil is sandy with outcropping rocks. Woods predominate made impenetrable by hospitable mosquitoes, while the highways are made dangerous by inhospitable automobilists. Many White Mountain and high northern plants such as *Aster radula*, Ait., are common, while no such plants as the Black Raspberry, *Desmodiums* or *Lespedezas* appear. A few miles north the normal flora of this latitude begins to be seen.

But five of the blackberries of Vermont and Connecticut were found: *Rubus Allegheniensis*, Porter (*R. nigrobaccus*, Bailey and *R. villosus*, of Gray's Manual) the common high blackberry of the north-east which is often very poor here; *R. recurvans*, Blanchard here perfectly at home; *R. procumbens*, Muhl. (*R. canadensis* of Gray's Manual); and innumerable forms of *R. hispidus*, L. and *R. setosus*, Bigelow (*R. nigricans*, Ryd.). The edible forms of blackberries except in

favorable situations do not furnish bountiful crops in this section and pickers are neither plenty nor enthusiastic, but the blueberry pickers are numerous and successful.

Of the nine species and varieties of plants considered in this paper, the first four are prostrate dewberries of the *Procumbens* class with edible fruit and canes of nearly the same size throughout. The last five belong to a class with stems thick at the base, tapering upward and outward, erect at first, recurving and tipping like a Black Raspberry. They have wide leaflets and the growth on old canes resembles that of the dewberries. They are called "mongrels," "half-high" and other expressive names.

* Stems prostrate. True Dewberries of the *Procumbens* class.

+ Prickles recurved, hooked.

RUBUS PROCUMBENS, Muhl. Plants completely prostrate, glandless, slightly pubescent, prickles strongly hooked; canes killing back most of their length in unprotected places; leaves of moderate size, 3-foliate; inflorescence with a few nearly erect slender pedicels; strongly tipping, *i. e.* rooting at the tip.

New canes. Stems prostrate, 4 to 8 ft. long, greenish, terete, glabrous and glandless, hard, often branched, and late in August branching at the ends, the latter swelling and tipping vigorously. Prickles short, strong, conspicuously hooked, quite numerous, 8 to 16 to the inch of stem, not noticeably in lines. Leaves of moderate size, rather thick, 4 to 5 in. long and wide, normally 3-foliate but often becoming 5-foliate, shining yellow-green on the upper surface, the few hairs often disappearing with age, bright green below and slightly pubescent, with hairs also on the large veins, ciliate on the edges. Leaflets rhomboidal or oval, entire in outline, abruptly narrowed to a taper point, rather coarsely and slightly doubly serrate-dentate or slightly serrate, the base entire; the middle one often nearly orbicular, 2 in. or more broad, the side ones wide, more or less lobed on the lower side, frequently divided, then cuneate at both ends and much narrower than the middle one; the basal leaflets quite narrow and cuneate. Petiole and petiolules rather slender, grooved, nearly or quite glabrous, prickles short and much hooked; the petiolule of the middle leaflet $\frac{1}{2}$ in. long, the others sessile.

Old canes. Badly killed back except in protected places, prickles intact. Second year's growth consisting entirely of leafy, erect branches or stemlets, one from the axil of each old leaf, all bearing inflorescence. Branch stems 4 to 7 in. high, irregularly angled, considerably pubescent, often quite so, glandless, prickles slender, not numerous, slanting backward or hooked. Leaves 3-foliate or the upper ones unifoliate, bright green on the upper surface, paler below; in texture and pubes-

cence like those on the new canes. Leaflets oval, obovate or ob-wedge-shaped, sparsely serrate and cuneate at the base, rather coarsely serrate-dentate above and broadly pointed. Petiole and petiolules slightly grooved above, glandless, somewhat pubescent, prickles generally slender and hooked. Inflorescence with from 3 to 7, frequently 1, nearly erect, slender pedicels from $\frac{1}{2}$ to $2\frac{1}{2}$ in. long, more or less pubescent, glandless; or sometimes cymose or racemose. Pedicels subtended by leaves or leaflike bracts. Flowers, appearing the 20th of June, about 1 in. broad, petals wide, sepals very pubescent or woolly, mucronate. Fruit, ripe about the first of August, nearly globose, $\frac{1}{2}$ in. in diameter; drupelets large, averaging nearly $\frac{3}{16}$ in. in diameter. Two fruits counted and measured: $\frac{7}{16}$ in. high, $\frac{1}{2}$ in. wide with 15 drupelets each $\frac{3}{16}$ in. in diameter; $\frac{1}{2}$ in. high, $\frac{1}{2}$ in. broad with 19 drupelets each $\frac{2}{16}$ in. in diameter. Very edible.

A representative station: The territory in a radius of one-fourth of a mile around the railroad station at Wells Beach, Me. Frequent throughout Wells, Kennebunk and Kennebunkport. Found also in North Berwick, Biddeford and Saco. Dry open places.

This species is probably the one named *R. villosus* by Aiton in 1789 but the name had been used before. Gray, Wood and others called it *R. Canadensis*, L. The older authors called it *R. trivialis*, Michx. but Dr. Muhlenberg segregated it from that species in 1818. Bigelow gave a very good description of it growing on sandy ground but held to the name given it by Michaux using that of Muhlenberg as a synonym. That Muhlenberg named *this* plant need not be doubted though he did not describe it and left no specimens. The writer has recently (July, 1906) searched for several days in the southeastern part of Pennsylvania including Lancaster, Muhlenberg's old home and with the exception of a little *R. hispidus* no other dewberry could be found. The forms in Connecticut and those growing around Philadelphia, Lancaster, Baltimore and Washington are the same. It is common in Southern New England but in Maine, New Hampshire and Vermont it seems to be restricted to the White Oak sections or nearly so.

Rubus geophilus, n. sp. Plants perfectly prostrate, glandless, somewhat pubescent, prickles slender and hooked; canes very long and soft; leaves very large, 5-foliate, outline jagged, very coarsely serrate; stemlets very tall; inflorescence a few very erect, large and very long pedicels; fruit remarkably large; tipping readily.

New canes. Stems prostrate, 6 to 12 ft. long, greenish, glabrous and glandless, soft, tipping readily late in August from swelled ends. Prickles rather short, slender, hooked, not numerous, 5 to 10 to the inch of stem, not noticeably in lines. Leaves large, 6 in. long and wide,

rather thick, normally 5-foliate many 3-foliate, shining light yellow-green with appressed hairs on the upper surface, whitish with long appressed pubescence on the veins below, ciliate. Leaflets oval, outline broadly jagged, generally regularly so, short taper-pointed, very coarsely and doubly serrate and serrate-dentate, entire at the base; the middle leaflet very broad; the side leaflets one-half as wide as long, cuneate at both ends; the basal ones similar but much smaller. Petiole and petiolules stout, glandless, nearly glabrous, green, grooved; prickles few, stout, hooked; the petiolule of the middle leaflet $\frac{1}{2}$ in. long, the side ones very short, and the basal leaflets sessile.

Old canes. Considerably killed back, prickles somewhat broken. Second year's growth consisting of erect branches or stemlets 4 to 10 in. long, generally one from each old leaf axil, all bearing inflorescence. Axis somewhat zigzag, irregularly angled, green, glandless, slightly pubescent; prickles few, small, slender, generally hooked. Leaves large, 3-foliate, those of the inflorescence unifoliate; in color, texture and pubescence like those on the new canes. Leaflets and unifoliate leaves similar, oval, short-pointed at each end, coarsely and somewhat doubly serrate-dentate. Petiole and petiolules green, grooved, faintly pubescent; prickles few and small, hooked; the petiolule of the middle leaflet less than $\frac{1}{2}$ in. long, the side ones sessile. Inflorescence one to five green erect pedicels, 1 to 3 in. long, somewhat pubescent, glandless, subtended by leaves, the lower by the trifoliate, the others by the unifoliate ones. Flowers, appearing late in June, large, $1\frac{1}{4}$ in. broad; petals oval, one-half as wide as long; sepals pubescent or woolly, mucronate. Fruit short-oblong approaching globose, not regular, large and composed of the largest drupelets, sometimes $\frac{1}{4}$ in. in diameter. Four measured and counted: $\frac{1}{16}$ in. high by $\frac{9}{16}$ in. broad, 32 drupelets each $\frac{5}{16}$ in. in diameter; $\frac{3}{4}$ in. by $\frac{5}{8}$ in., 36 drupelets each $\frac{3}{16}$ in.; $\frac{3}{4}$ in. by $\frac{5}{8}$ in., 23 drupelets each $\frac{1}{4}$ in.; $\frac{9}{16}$ in. by $\frac{9}{16}$ in., 13 drupelets. Very edible. Fruiting season from August 1 to August 15.

Type stations: Near the railroad station Arundel in Kennebunkport, Me.; at the springhouse, Grove station in Kennebunk; near the railroad station at West Kennebunk; the ocean bank at Cape Arundel, Kennebunkport opposite the cottage of Mr. Ogden; and in a pasture near the station at Wells Beach. Open, dry ground. Frequent in Wells, Kennebunk and Kennebunkport.

This large dewberry may be worthy of cultivation, but the experience of the writer has been that no dewberry save in exceptional situations and in exceptional years produces much of a crop.

+ + Prickles straight.

Rubus plicatifolius, n. sp. Plants entirely prostrate, glandless, slightly pubescent, prickles slender and straight, never hooked; inflorescence a raceme with wide-spreading pedicels, remarkably fruitful, the fruit largely lying on the ground from its weight. Leaves large,

5-foliate, noticeably yellow, the leaflets with conspicuously plaited or ruffled margins. Tipping readily.

New canes. Stems prostrate, 4 to 6 feet long, greenish, terete, glabrous and glandless, often branched, the ends swelling late in August and readily tipping. Prickles long, slender, rather strong, straight with a backward slant, never hooked except near the tipping end, not numerous, 5 to 10 to the inch of stem, not noticeably in lines. Leaves rather large and thick, 5 to 6 in. long and wide; normally 5-foliate but often 3-foliate on early growth; noticeably yellow; light yellow-green and perfectly glabrous on the upper surface, lighter below and slightly pubescent, with hairs on the large veins; slightly ciliate. Leaflets oval, outline entire, taper-pointed; deeply, finely, sharply and somewhat doubly serrate-dentate, the base entire, the margin remarkably wavy-plaited or ruffled; the middle leaflet very broad, frequently nearly orbicular, often $2\frac{1}{2}$ in. wide; the side leaflets one-half as wide as long, cuneate at the base; and the basal ones smaller but having the same proportion. Petiole and petiolules rather slender, yellow, sparingly pubescent, grooved; prickles slender, strong, slightly hooked; the petiolule of the middle leaflet $\frac{3}{4}$ in. long, the side ones one-fourth as long and the basal leaflets sessile.

Old canes. But slightly killed back, prickles much broken. Growth of second year consisting of erect branches; occasionally a pure leaf branch, mostly fruit branches, 3 to 6 in. high, those near the base of the cane longer and more leafy than those nearer the extremity, generally one from each old leaf axil. Axis zigzag, irregularly angular, yellow, pubescent, glandless; prickles few, weak, straight and slender. Leaves very small, 3-foliate, those on the inflorescence unifoliate; in color and texture like those on the old canes, but more pubescent. Leaflets oval, pointed at both ends, deeply serrate-dentate with incurved teeth, the margins plaited or ruffled. Petiole and petiolules yellow, pubescent; prickles slender and few, nearly straight. Inflorescence a broad raceme, the axis 1 to $1\frac{1}{2}$ in. long with 6 or 8 pedicels set at a great angle to the axis, pubescent but glandless. Flowers rather large, $1\frac{1}{8}$ in. broad; petals oval one-half as wide as long; sepals very pubescent or woolly, mucronate; appearing about July 1. Fruit short-cylindric, not globose, about $\frac{5}{8}$ in. high and $\frac{1}{2}$ in. wide with large drupelets $2\frac{1}{2}$ to 3 sixteenths inches in diameter. Four measured and counted: $\frac{5}{8}$ in. high by $\frac{1}{2}$ in. wide 28 drupelets; $\frac{5}{16}$ in. by $\frac{3}{16}$ in., 27 drupelets; $\frac{7}{16}$ in. by $\frac{3}{8}$ in., 18 drupelets; $\frac{3}{8}$ in. by $\frac{3}{8}$ in., 20 drupelets. Very productive; picking season from August 1 to August 15.

Type stations: The railroad depot at Wells Beach and the highway thence to Kennebunk village, Maine. Very abundant in various places in Wells, Kennebunk and Kennebunkport. Also in North Berwick. Open places, especially in sandy ground.

The plaited or ruffled margins of the leaves of this plant make it unique among dewberries if not among blackberries in general. It

has, too, a regular raceme and is so loaded that the fruit lies on the ground.

Rubus arenicolus, n. sp. Plants perfectly prostrate, glandless but very pubescent, prickles long and straight, tipping readily. Inflorescence a corymbose cyme, flowers large and very conspicuous. Leaves small, 3-foliate, leaflets nearly orbicular. Prefers a sandy or gravelly home.

New canes. Stems very prostrate, brown, terete, 5 to 10 feet long, glabrous and glandless, the ends swelling and tipping in September. Prickles long, nearly $\frac{3}{16}$ in., straight with a slight backward slant or none, never hooked except near the tipping end, numerous, 10 to 20 to the inch of stem, not noticeably in lines. Leaves small and quite thick, $4\frac{1}{2}$ in. long by $3\frac{1}{2}$ in. broad, 3-foliate with an occasional leaf 5-foliate, light yellow-green with abundant appressed hairs on the upper surface, whiter beneath with copious pubescence and velvety to the touch, slightly ciliate. Leaflets nearly or quite orbicular, outline nearly entire, very short-pointed, finely and doubly serrate below, serrate-dentate above; the side ones more or less lobed on the lower side. Petiole and petiolules stout, reddish, glandless, very pubescent, deeply grooved; prickles long, slender, numerous, slightly hooked or straight; the petiolule of the middle leaflet $\frac{1}{2}$ in. long, the side ones sessile.

Old canes. Stems slightly killed back, prickles intact. Growth of second year consisting of erect, leafy fruit branches, 3 to 6 in. long, decreasing regularly in length from the base of the stem, one from each old leaf axil. Axis zigzag, irregularly angled, green, very pubescent, glandless, prickles slender, straight or slightly hooked. Leaves small, 3-foliate those of the inflorescence unifoliate, in color texture and pubescence like those on new canes. Leaflets broad-oval about 1 in. long and $\frac{3}{4}$ in. wide, broad-pointed at each end, generally sharply serrate or serrate-dentate; the unifoliate leaves often very wide, frequently nearly cordate. Petiole and petiolules green, very pubescent, prickles slender, hooked; the middle leaflet only stalked. Inflorescence an irregular cyme with 4 to 6 pedicels, very pubescent, glandless, with numerous long, slender, straight prickles, set perpendicularly to the pedicel. Flowers appearing the first week in July large and showy, $1\frac{1}{8}$ in. broad, petals broad oval or obovate, two-thirds as wide as long. Sepals white-woolly, mucronate. Fruit broad-oblong, about $\frac{1}{2}$ in. high and broad, drupelets large, $\frac{3}{16}$ to $\frac{1}{4}$ in. in diameter. Three measured and counted: $\frac{9}{16}$ in. high by $\frac{1}{16}$ in. broad, 19 drupelets; $\frac{1}{2}$ in. by $\frac{1}{2}$ in., 18 drupelets; $\frac{9}{16}$ in. by $\frac{5}{8}$ in., 22 drupelets. Very productive and edible. Fruiting season from August 10 to August 20. Open, sandy places.

Type stations: The railroad bank midway between Kennebunk depot and Parsons depot, Maine. Abundant around the Kennebunk town gravel-pit and in the highway below it, and at the

Kennebunk depot. Found also in numerous other places in Kennebunk and Wells.

This plant impressed the writer as very distinct in 1904 and was closely watched in 1905. Its abundant pubescence, large flowers, cymose inflorescence and late flowering considering its hot home distinguish it. Its tendency, too, to send up stocky flower stems from the root though not confined to this species is very noticeable.

* * Stems recurved. The end touching the ground or prostrate. The *Recurvans* class.

— End often touching the ground, tipping in favorable places.

RUBUS RECURVANS, Blanchard. Described in RHODORA, Vol. 6 (1904), page 223. Plants with stems erect in dry situations, in favorable places recurving and sometimes tipping; very pubescent but glandless; leaflets broad; new growth polymorphous — leafy branches, fruit branches and nearly leafless racemes, often more than one from the axil of the same old leaf. Inflorescence a quite regular raceme; fruit cylindric with numerous rather small drupelets. Four measured and counted: $\frac{1}{2}$ in. high by $\frac{3}{8}$ in. broad, 25 drupelets; $\frac{9}{16}$ in. by $\frac{7}{16}$ in., 31 drupelets; $\frac{9}{16}$ in. by $\frac{7}{16}$ in., 39 drupelets; $\frac{5}{8}$ in. by $\frac{9}{16}$ in., 36 drupelets.

This species gives a good harvest of fine fruit and is abundant in many places in this section, notably on the west road from Kennebunk village to West Kennebunk midway between; at Wells Branch; around the sand-pit near Kennebunk cemetery; and between the railroad and Mousam river above Parsons station.

Var. **subrecurvans**, n. var. Plants dwarfish, pubescent; stems large and erect at the base, recurving, the end often touching the ground and tipping; prickles slender, strong and rather numerous. Leaves thin, very pubescent on the under surface, ternate in the early part of the season, the side leaflets deeply incised on the lower side, having a peculiar wavy appearance, leaflets very broad; these succeeded later by 5-foliate leaves. Inflorescence short-racemose with a few very short-stalked glands; flowers 1 in. broad, petals broad-oval; fruit subglobose, $\frac{1}{2}$ in. in diameter.

New canes. Stems erect, $1\frac{1}{2}$ to 2 feet high, soft, recurving, thick at the base, tapering gradually, the prostrate part maintaining one size, tipping in September, slightly angled, glabrous and glandless. Prickles slender, about $\frac{3}{16}$ in. long, 4 to 8 to the inch of stem, strong, straight, backward slant slight, set in lines on the angles of the stem or pith. Leaves thin, large, 3-foliate at first, these generally succeeded by 5-foliate smaller ones, glabrous and shining dark yellow-green on the upper surface, whiter and quite pubescent below, velvety to the touch, edges slightly ciliate or naked. Leaflets broad with long tapering points, outline entire or slightly incised, having a wavy

jagged look lost in the dried specimen, finely, sharply and doubly serrate becoming serrate-dentate toward the point, the middle leaflet rather broad-oval, nearly twice as long as wide, rounded at the base; the side leaflets on the trifoliate leaves also broad, oblique-angled at the base, more or less deeply and singly incised on the lower side, at length divided; on quinate leaves narrow-oval or rhomboidal, cuneate at the base; and the basal leaflets similar in shape but smaller. Petiole and petiolules slender, yellowish, slightly hairy, grooved; prickles rather numerous, slender, hooked; the petiolule of the middle leaflet $\frac{3}{4}$ in. long, the side ones short-stalked or sessile, the basal ones always sessile.

Old canes. Stems erect as before, soft prickles intact, light brown. New growth consisting of leafy fruit branches or occasionally a branch destitute of inflorescence, 3 to 7 in. long, one from each old leaf axil. Axis of branch yellowish, angled; prickles few, slender, hooked; pubescence considerable. Leaves rather large; in color, texture and pubescence similar to those on new canes; trifoliate, those of the inflorescence unifoliate. Leaflets long, rather narrow, oval, cuneate at each end, coarsely and somewhat doubly serrate, or approaching dentate toward the point; the unifoliate leaves similar in shape, or some wide and deeply incised, approaching trifoliate. Petiole and petiolules slender, grooved, yellowish, considerably pubescent; prickles slender, strong and hooked; the petiolule of the middle leaflet long, the others sessile. Inflorescence short-racemose; pedicels slender, pubescent with an occasional very short-stalked gland; subtended by small bracts and one or two unifoliate leaves, or on some by several small leaves. Flowers appearing about July 1 over an inch broad, petals broad-oval. Sepals rather long and slender, pubescent, with occasional, sometimes numerous, very short-stalked glands. Fruit subglobose, drupelets large, $\frac{3}{16}$ in. in diameter. Two measured and counted: $\frac{7}{16}$ in. high by $\frac{3}{16}$ in. broad, 16 drupelets; $\frac{5}{8}$ in. by $\frac{9}{16}$ in., 23 drupelets. Fruiting season from August 5 to August 20. Very edible.

Type station: In Kennebunkport, Maine, one-fourth mile north of the center of the village of Cape Porpoise on the Biddeford road. Abundant in the road and mowings east of it. Also two more stations in the town of Kennebunkport, one in Biddeford, and one in Old Orchard. Dry ground in open sun or light shade.

+ + End generally touching the ground or prostrate. commonly tipping.

***Rubus recurvicaulis*, n. sp.** Plants glabrous $2\frac{1}{2}$ to 4 ft. high, stems very large at the base, recurving and the prostrate end tipping; prickles inconspicuous. Leaves large and thick generally blackening in drying, 5-foliate, leaflets broad. Inflorescence cymose-racemose, sepals occasionally glandular; flowers over 1 in. broad, petals broad oval; fruit subglobose $\frac{1}{2}$ in. in diameter.

New canes. Stems erect, rather soft, thick at the base, $2\frac{1}{2}$ to 4 feet high, recurving, the prostrate end swelling and tipping in September, more or less 5-angled or terete, brown, glabrous and glandless, sometimes branched. Prickles inconspicuous, slender, rather strong, straight, backward slant slight, not numerous, set in lines over the pentagonal pith. Leaves very large and thick on the erect part of the stem, often 8 in. long and 7 in. wide, smaller and thinner beyond, 5-foliate, very bright light yellow-green and glabrous on the upper surface, whiter and glabrous below, faintly ciliate; occasionally a few appressed hairs occurring on the upper surface and a few hairs on the veins beneath, slightly leathery to the touch. Leaflets oval or rhomboidal, taper-pointed, outline nearly or quite entire; finely, deeply, sharply and doubly serrate-dentate; the middle leaflet very broad, often on the large leaves nearly orbicular; the side leaflets also very wide on the leaves growing on the erect part of the stem, narrower on the recurving part and about one-half as wide as long, wedge-shaped at the base; and the basal leaflets similar in shape but smaller. Petiole and petiolules rather large, glabrous, grooved, yellowish; prickles medium size, hooked; the petiolule of the middle leaflet of large leaves 1 in. long; the side ones one-third as long, never sessile; the basal leaflets sessile.

Old canes. Stems erect as ever, prickles intact, well-tipped stems not killed back, easily cut. New growth consisting of leafy fruit branches solely, 4 to 8 in. long, no pure leaf branches on the lower part of the stem as in the erect species, usually one from each old leaf axil. Axis greenish, angled, prickles few and weak, glabrous or with faint pubescence, glandless, slightly zigzag. Leaves rather large, variable in shape, 3-foliate, those of the inflorescence largely unifoliate; thin, light yellow-green and glabrous. Leaflets normally broad-oval, pointed at each end, sharply, deeply and doubly serrate-dentate, often incised at the top; unifoliate leaves mostly broad also, incisely serrate-dentate; but narrow in some cases. Petiole and petiolules green, slender, nearly glabrous, grooved; prickles nearly wanting, the middle leaflet short-stalked, the side ones sessile. Occasionally more than one bud starting from an axil making a leafy mass with little inflorescence and narrow leaflets. Inflorescence cymose-racemose, axis short, pedicels 4 to 6, short, slender, glandless, nearly glabrous, subtended by small bracts. Flowers appearing about July 1 large, over 1 in. broad, petals broad-oval, showy. Sepals running to a slender point, nearly glabrous with occasional stalked glands on the outside, pubescent inside. Fruit very edible, subglobose, about $\frac{1}{2}$ in. high and wide; the drupelets large, from $\frac{3}{16}$ in. to $\frac{1}{4}$ in. in diameter. Seven measured and counted: $\frac{5}{8}$ in. high by $\frac{1}{2}$ in. broad, 25 drupelets; $\frac{9}{16}$ in. by $\frac{1}{2}$ in., 21 drupelets; $\frac{9}{16}$ in. by $\frac{9}{16}$ in., 19 drupelets; $\frac{7}{16}$ in. by $\frac{1}{2}$ in., 11 drupelets; $\frac{3}{8}$ in. by $\frac{1}{2}$ in., 9 drupelets; $\frac{9}{16}$ in. by $\frac{9}{16}$ in., 16 drupelets $\frac{1}{2}$ in. by $\frac{1}{2}$ in., 12 drupelets. Picking season August 10 to August 25.

Type station: The road from Grove depot to the village of Kenne-

bunk Beach, Maine. A very abundant plant in roads, mowings and pastures in Wells, Kennebunk and Kennebunkport. Also in Biddeford and Old Orchard. Open ground and light shade.

The writer first noticed this plant in 1904 and doubtfully referred it to *R. recurvans*, but its distinctness soon became evident with more observation. The lack of pubescence and comparative lack of prickles are alone sufficient to distinguish it from that plant, while its tendency to blacken in drying seems to be greater than that of any other blackberry.

Var. *inarmatus*, n. var. Plants large-stemmed, glabrous, glandless and nearly unarmed, $1\frac{1}{2}$ to 2 ft. high, recurving and the long slender end tipping. Leaves 5-foliate, thick, the earlier ones very large. Inflorescence an irregular cyme; flowers very large and showy, from $1\frac{3}{8}$ to $1\frac{1}{2}$ in. broad, petals wide; fruit globose, $\frac{1}{2}$ in. in diameter.

New canes. Stems erect, $1\frac{1}{2}$ to $2\frac{1}{2}$ feet high, thick at the base, brown, soft, recurving with a long, slender prostrate end, tipping in September, slightly angled, glabrous and glandless. Prickles very few and small, often none, straight, set on the angles of the stem or pith. Leaves thick, those appearing early very large, smaller beyond, yellow-green and glabrous on the upper surface, paler beneath and apparently glabrous, but with an appressed pubescence, not ciliate, 5-foliate. Leaflets broad, short taper-pointed, outline entire, finely and doubly serrate-dentate; the middle leaflet very broad, often nearly orbicular and approaching cordate; the side ones broad also, rhomboidal, broadly cuneate; the basal ones similar in shape but smaller. Petiole and petiolules large, glabrous, yellowish, prickles wanting; the petiolule of the middle leaflet about 1 in. long, the side ones one-fourth as long, and the basal leaflets sessile.

Old canes. Stems much nearer the ground, reddish brown, soft, prickles entirely wanting. New growth consisting entirely of leafy fruit branches 4 to 8 in. long, or rarely a branch without inflorescence, generally one from each old leaf axil, frequently several. Axis of branch green-yellow, angled, unarmed, finely pubescent, zigzag. Leaves of good size, coarse texture, 3-foliate; some on the inflorescence unifoliate; glabrous and yellow-green on the upper surface, light and faintly pubescent beneath. Leaflets narrow-oval, long; pointed at each end, rather coarsely and doubly serrate, nearly dentate toward the point; the unifoliate leaves mostly very broad and deeply 2-incised, approaching trifoliate. Petiole short, stout, grooved, unarmed, pubescent, the petiolule similar; the middle leaflet short-stalked, the side ones sessile. Inflorescence cymose approaching racemose, pedicels 4 to 6, rather long, slender, glandless, slightly pubescent, subtended by small bracts. Flowers very large, from $1\frac{3}{8}$ to $1\frac{1}{2}$ in. broad; the petals wide, measuring from $\frac{1}{16}$ in. long by $\frac{7}{16}$ in. wide to $\frac{1}{16}$ in. long by $\frac{8}{16}$ in. wide; sepals abruptly narrowed to a

point, hardly mucronate, very pubescent but glandless; opening about July 1. Fruit globose, $\frac{1}{2}$ in. in diameter composed of large drupelets. Ripe early in August. Very edible but a poor cropper most of the fruit blighting and producing "dry fruit."

Type station: The railroad yard, ball-ground and waste dumps between the shoe-shops in the village of Kennebunk, Maine. Several large clumps in different parts of these grounds.

Rubus semierectus, n. sp. Plants erect at first, $1\frac{1}{2}$ to $2\frac{1}{2}$ ft. high; stems small at the base recurving and the long prostrate end tipping; often entirely prostrate the second year, sometimes nearly so the first; prickles rather numerous, straight. Leaves numerous, thin, somewhat pubescent, not large, very variable in size, 3-foliate or more often 5-foliate, leaflets often concave or convex drying with a wrinkled centre. Inflorescence corymbose, variable, often slightly glandular; flowers very small; fruit irregular in shape, not large, often abundant.

New canes. Stems erect or decumbent, recurving on vigorous, normal plants, the end of the cane often prostrate, greenish, terete, glabrous and glandless, sometimes branched, the ends normally swelling and tipping in September. Prickles short, slender, straight, strong, backward slant slight, never hooked, rather numerous, 10 to 15 to the inch of stem, not noticeably in lines. Leaves not large, very variable in size, thin, 3-foliate or more often 5-foliate, generally quite yellow, dull yellow-green with many appressed hairs on the upper surface, lighter beneath and considerably pubescent, very variable in amount, slightly ciliate. Leaflets broad-oval, often concave or convex, drying with a wrinkled center, outline nearly entire, short-pointed, finely and doubly serrate-dentate; the middle leaflet very broad, often orbicular; the side leaflets of trifoliate leaves also very broad and more or less singly cleft on the lower side; the side leaflets of quinate leaves broad oval, rhomboidal or obovate, broadly cuneate at the base; and the basal leaflets similar in shape but smaller. Petiole and petiolules yellowish, rather slender, glabrous and glandless, grooved; prickles rather numerous, slender and hooked; the petiolule of the middle leaflet about $\frac{3}{4}$ in. long, the side ones short-stalked, and the basal leaflets sessile.

Old canes. Often prostrate especially in fruit, prickles much broken. Growth of second year mostly fruit branches, occasionally a leaf branch, 5 to 10 in. long, commonly one from the axil of each old leaf. Axis of branch zigzag, irregularly angled, stout, yellow, pubescent, glandless; prickles few, slender, hooked. Leaves varying much in size and shape, 3-foliate, those of the inflorescence unifoliate, in color, texture and pubescence like those on new canes. Leaflets oval, often broad-oval, pointed at both ends, serrate-dentate. Petiole and petiolules slender, grooved, pubescent and glandless, the middle leaflet short-stalked, the others sessile. Inflorescence of two kinds; one a slender raceme with long, slender pedicels set at a sharp angle to the axis; the other a close raceme with a very short axis, the pedicels

short and stout set at a great angle to the axis. Pedicels 5 to 10, pubescent, often glandular. Flowers opening about June 20 noticeably small, $\frac{3}{4}$ to $\frac{7}{8}$ in. broad; petals oval, twice as long as wide; sepals woolly, sometimes glandular, mucronate. Fruit irregularly globose, composed of from 5 to 30 drupelets mostly large. Three measured and counted: $\frac{1}{2}$ in. high by $\frac{7}{16}$ in. wide, 27 drupelets; $\frac{9}{16}$ in. by $\frac{1}{2}$ in., 32 drupelets; $\frac{5}{8}$ in. by $\frac{1}{2}$ in., 32 drupelets. Ripening season from August 1 to August 15. Very edible, the crop often good but too much small fruit. Type in Kennebunk, Maine. Abundant in Kennebunk, Kennebunkport and Wells. Also seen in North Berwick, Biddeford and Saco. Dry places, open ground.

This is the most variable plant described in this paper. Its small flowers distinguish it from all the others. Perhaps it should not be put in either class. The cane is small at the base like a dewberry, but its tendency to keep off the ground is so great that it is brought down solely by the weight of the plant, only long canes ever becoming prostrate.

SUPPLEMENTARY NOTE.—The writer has recently found *R. geophilus* in New Bedford, Massachusetts, and *R. plicatifolius* in Burrillville and Gloucester, Rhode Island. An interesting form of *R. recurvans* with dark green leaves and other peculiarities occurs in Connecticut, Rhode Island and Southeastern Massachusetts.

WESTMINSTER, VERMONT.

NOTES ON ALGAE,—VIII.

F. S. COLLINS.

GOBIA BALTICA (Gobi) Reinke, Algenflora der westlichen Ostsee, p. 65; *Cladosiphon Balticus* Gobi, Brauntange der Finnischen Meerbusens, p. 12, Pl. I, figs. 7–11. Nearly related to *Dictyosiphon*, but the cortical layer is more strongly developed, and takes the form of densely packed, few-celled filaments, at right angles to the axis of the frond; in this layer are imbedded the oval unilocular sporangia, sometimes slightly projecting; and through it issue the hairs. The branches are contracted at the base; the branching is never very abundant, and sometimes the fronds are nearly or quite simple. It

is found in all parts of the Baltic; the first American locality is Newport, R. I., where it was collected by Mrs. W. C. Simmons in June, 1899; since then a specimen has been received from Prof. John Macoun, collected at Louisburg, Nova Scotia. The Rhode Island plant is very little branched, and is of a softer texture than the Nova Scotia plant, or than authentic European specimens; otherwise they are much the same.

MYRIONEMA CORUNNAE Sauvageau, Annales des Sciences Naturelles, Series 8, Bot., Vol. V, p. 237. In general appearance not unlike *M. vulgare* Thuret, this plant is distinguished by the usually very abundant plurilocular sporangia, cylindrical or slightly torulose, 5-7 μ diameter, 25-120 μ long, the cross walls often quite oblique, longitudinal divisions occasionally occurring. The sporangia are either sessile on the basal layer, or borne on a one- to four-celled pedicel. They are long and mostly pediceled at the center of the basal disk, becoming shorter and sessile near the margin; usually simple, they are occasionally branched; hairs are found occasionally, but not commonly; unilocular sporangia, so common in *M. vulgare*, are unknown in *M. Corunnae*. Sauvageau found no assimilative filaments, but Jónsson, Botanisk Tidsskrift, Vol. XXV, p. 144, mentions and figures them, in size and shape much like the sporangia, but with longer cells. He describes a variety *filamentosa*, in which the filaments of the basal portion are free, not united into a disk. In material collected in Casco Bay, Maine, all intermediate forms between the type and the variety were found. It occurs also at Wood's Hole, Mass., and at Newport, R. I., in each case on *Laminaria*, on which it is found also in Europe. Distributed as P. B.-A., No. 1234.

LITHODERMA FATISCENS Areschoug, Observationes Phycologicae, part III, p. 23. It is probable that two species, with quite different types of plurilocular sporangia, have been included under this name; the matter has been carefully gone over by Kuckuck, Wissenschaftliche Meeresuntersuchungen, Neue Folge, Vol. I, p. 237, 1894. The plurilocular fruit having never been recorded in America, while the unilocular fruit in the specimens to be noted here agrees with Kuckuck's description and figures, there is little risk in our identification. In habit and general structure it resembles *Ralfsia verrucosa* Aresch., but the cells contain each several small chromatophores, instead of the single large chromatophore of *Ralfsia*; the unilocular sporangia are terminal, each at the end of a vertical filament. While sterile

plants probably belonging here have occasionally been found, in only one instance has fruit been observed in American specimens and the determination made definite; in this case the plant grew on a pebble to which was attached a frond of *Laminaria longicuris* De la Pyl., washed ashore at Revere Beach, Mass., May 8, 1904.

CONCHOCELIS ROSEA Batters, Phyc. Mem., Vol. I, p. 27, Pl. VII. Though less common than the other perforating algae, *Gomontia polyrhiza* (Lagerh.) Born. & Flah., and *Mastigocoleus testarum* Lagerheim, this species is not infrequently met with in dead shells of mollusks, mostly of the heavier kinds, to which it gives a pleasant pink color. By decalcification there is obtained a dense mat of articulate branching filaments, 2–7 μ diameter, cells varying greatly in length, occasionally expanding to 30 μ diameter, the expansion containing what is supposed to be a spore, 13–15 μ diameter. There has been some question as to the position of this genus, and it has been suggested that it may be a variety of *Ostreobium Quekettii* Born. & Flah., but this seems hardly likely, if Batters' description is correct. It has been found at Casco Bay, Maine, and at Revere Beach, Mass.; probably it will be found at other stations.

RHODOMELA LYCOPODIODES (L.) Agardh, Species Algarum, p. 377. This is a characteristic Arctic species extending some distance into the temperate zone on both sides of the Atlantic and Pacific oceans. It is extremely variable in form, and its distinction from the somewhat more southern and also variable *R. subfusca* (Woodw.) Ag. is by no means sharp. The writer found a small scrap of it washed ashore at Harpswell, Maine, in July, 1903; at a visit to the same place in June, 1904, it was quite abundant, but in July, 1904, and July, 1905, was again rare. This would seem to indicate that its season was earlier than that of *R. subfusca*, which is not uncommon, at least in its later stages, on the Maine coast in July. In typical *R. subfusca* the main branches are often nearly naked below, bearing spirally arranged branches of the next order, each order of branches being quite regularly arranged on the branch of the preceding order, the penultimate branches being short, of about the same length, and ending in a dense glomerule of ramuli. In typical *R. lycopodioides* the branching is more irregular and except at the tips more dense, the successive orders of branches less distinct, longer and shorter branches being intermingled; when the branching is dense it is dense throughout, not specially at the tips. Short spindle-shaped branches

are more or less abundant; in *R. subfusca* the ramuli are cylindrical or tapering. Numerous varieties of *R. lycopodioides* are described and figured by Kjellman, *Algae of the Arctic Sea*, p. 107; as all of these, and also the forms of *R. subfusca*, have marked seasonal variations, the result is often confusing. The Harpswell material varies considerably, mostly agreeing with forma *typica* subforma *tenera* Kjellman, some, however, is more like forma *tenuissima*. Distributed as P. B.-A., No. 1295.

RHODOCHORTON PENICILLIFORME (Kjellm.) Rosenvinge, *Annales des Sciences Naturelles*, Series 6, Bot., Vol. XIX, p. 66. Like the nearly allied *R. membranaceum* Magnus, this species grows on *Bryozoa*, *Sertularia* etc., the two species often in company; they are, however, easily distinguished. In *R. membranaceum* the filaments grow freely inside the tubes of the host, sometimes so densely as to form an apparent membrane or cellular mass; rather short branches 6-8 μ thick break through the wall, and on these the terminal tetraspores are usually borne; in *R. penicilliforme* there is a disk of laterally united radiate filaments on the outer surface of the host; from this arise rather long erect filaments, about 12 μ diameter, bearing lateral tetraspores. It was found at Newport, R. I., in May, 1904, on a bryozoan attached to a *Laminaria*.

RHODODERMIS ELEGANS Crouan in J. G. Agardh, *Species Algarum*, Vol. II, p. 505. The genus *Rhododermis* was founded on this species, the fronds occurring as small bright red spots on fragments of china and pottery in the harbor of Brest, France. The frond consists of a disk composed of one or two layers of laterally united, radiate filaments; on this disk are formed sori of cruciate tetraspores intermixed with clavate, more or less curved, paraphyses. *R. elegans* has been found at Harpswell, Maine, and at Revere Beach, Mass., in both cases on the shells and claws of live crabs. Distributed as P. B.-A., No. 1248.

RHODODERMIS PARASITICA Batters, *Algae of Berwick-on-Tweed*, p. 92, Pl. XI, fig. 2, A & B. In this species the frond is thicker than in *R. elegans*, appearing in cross section as if composed of densely packed, vertical filaments, with cells longer than broad; the color is darker, almost black. It occurs, both in Europe and with us on stipes of *Laminaria* species, and was found at Magnolia, Mass., by Prof. W. G. Farlow.

RHODODERMIS GEORGII (Batters) Collins, in *Phyc. Bor.-Am.*, No. 1299. *Rhodophyseuma Georgii* Batters, *Journal of Botany*, Vol. XXIX,

p. 377; *Rhododermis Van Heurckii* Heydrich, Beihefte zum Botanischer Centralblatt, Vol. XIV, p. 246, Pl. XVII. The fronds of this species are cushion-shaped, of dense cellular structure, growing chiefly at the edges of *Zostera* blades; they occur also on the surface of the blade, but do not develop as fully as at the edges, where their thickness is such that they sometimes show even to the naked eye as distinct prominences. *R. Georgii* was found abundantly at Wood's Hole, Mass., in April, 1905; has since been found at Harpswell, Maine, Revere Beach, Mass., and Rocky Point, R. I.; probably it occurs in spring all along the coast.

The three species of *Rhododermis* mentioned above are all that have been described in the genus; it is satisfactory to add them all to our flora at the same time.

MALDEN, MASSACHUSETTS.

SOME NEW OR LITTLE KNOWN CYPERACEAE OF EASTERN NORTH AMERICA.

M. L. FERNALD.

(Continued from page 130.)

SCIRPUS hudsonianus (Michx.), n. comb. *Eriophorum alpinum* L. Sp. 53 (1753), not *Scirpus alpinus* Schleicher in Gaud. Fl. Helv. i. 108 (1828). *Linagrostis alpina* Scop. Fl. Carn., ed. 2, i. 48 (1772). *Eriophorum hudsonianum* Michx. Fl. i. 34 (1803). *Trichophorum alpinum* Pers. Syn. i. 70 (1805). *Scirpus Trichophorum* Asch. & Graebn. Syn. ii. ab. 2, 301 (1903).

I have recently discussed this plant at length¹ and the reasons why it should be considered a *Scirpus* rather than an *Eriophorum*. The ruling of the International Congress at Vienna requires the retention of the earliest available specific name, and since there is already a *Scirpus alpinus* of Schleicher, it is necessary to take up Michaux's name which was given to a plant clearly identical with the Linnean *Eriophorum alpinum*.

¹ RHODORA, vii. 131, 132 (1905).

SCIRPUS etuberculatus (Steud.), n. comb. *S. maritimus*, var. *cylindricus* Torr. Ann. Lyc. Nat. Hist. N. Y. iii. 325 (1836). *Rhynchospora etuberculata* Steud. Syn. Pl. Cyp. 142 (1855). *Scirpus leptolepis* Chapm. Fl. 520 (1860). *S. Canbyi* Gray in Canby, Proc. Acad. Nat. Sci. Philad. 1864, 18. *S. cylindricus* Britton, Trans. N. Y. Acad. Sci. xi. 79 (1892).

SCIRPUS ROBUSTUS Pursh, Fl. 56 (1814) as now understood by the writer is a tall plant of the shores of the Gulf of Mexico and Florida, extending north to Cape Cod. Its green leaves are very long, equalling or overtopping the stout tall (0.7 to 1.2 m. high) culm; those of the involucre 3 or 4, the longest 2.5 to 4 dm. long: its spikelets are very rufescent, ovoid to cylindric, some sessile, others on short rays: the scales are all pubescent and strongly colored with elongate red markings and the awns many times exceed the cleft tips.

Northward and in alkaline regions of the interior *S. robustus* gives way to a variable plant with shorter paler leaves, and the scales of the spikelets from whitish-brown to castaneous scarcely if at all rufescent, the outermost scales glabrous except at tip, and the awn only twice or thrice exceeding the cleft-tip. This plant of the northern and interior portions of the continent, as stated, is very variable, but a prolonged study supplementary to a former attempt to separate the plants clearly¹ has failed to reveal any constant characters by which the plants can be separated specifically. This series of variations as understood by the writer falls into the following arrangement.

S. CAMPESTRIS Britton. Culms 0.3 to 1 m. high, usually exceeding the stiff pale leaves (3 to 9 mm. broad): involucre leaves 2 (or 3), the longer 1 to 2 dm. long: spikelets whitish brown, ovoid to cylindric, 1 to 2 cm. long, 6 to 10 mm. thick, 2 to 11 in a dense glomerule occasionally a few in a secondary glomerule: scales puberulent, or the outermost glabrous except at tip; the slightly curved awn twice or thrice exceeding the cleft-tip: achenes lenticular, plano-convex or obscurely trigonous. — Britton in Britton & Brown, Ill. Fl. i. 267, fig. 627 (1896); Bicknell, Torrey, i. 95 (1901). *S. robustus*, var. *campestris* Fernald, Rhodora, ii. 241 (1900).—Manitoba to Kansas, Nevada, eastern California and northern Mexico. Northward and in the mountains passing to

Var. *paludosus* (A. Nelson), n. comb. Similar but with the scales drab to castaneous. *S. paludosus* A. Nelson, Bull. Torr. Bot. Club, xxvi. 5 (1899); Bicknell, l. c. 94 (1901). *S. robustus*, var. *paludosus* Fernald, l. c. (1900). Alkaline soil, from the Gulf of St. Lawrence

¹ RHODORA, ii. 238 (1900)

to the Pacific, south to New Jersey, central New York, Kansas, Wyoming, &c.

Var. **novae-angliae** (Britton), n. comb. Usually taller (1 to 2 m. high): the involucreal leaves 3 to 5, the longest 2 to 3.5 dm. long: the looser inflorescence with 3 to 9 curved rays (2 to 10 cm. long): spikelets long-cylindric, 2 to 5 cm. long.—*S. novae-angliae* Britton in Britton & Brown, Ill. Fl. iii. 509, fig. 627a (1898).—Maine to southern New York, also western New York.

Var. **Fernaldi** (Bicknell) Bartlett in herb. Spikelets short-ovoid, 1 to 2 cm. long, on mostly elongate rays.—*S. Fernaldi* Bicknell, l. c. 96 (1901).—Maine to Massachusetts.

SCIRPUS ATROVIRENS as it usually passes in eastern America is a complex of three well marked species, which have been already defined, two as a species, one as a variety. A very full suite of specimens and field notes sent to the writer by Dr. J. V. Haberer has enabled him to study the plants with much satisfaction and the results of this study may be briefly summarized as follows.

S. ATROVIRENS Muhl. Gram. 43 (1817). Rather stout, 0.8 to 1.5 m. high: leaves pale green, with scabrous margins, 7 to 15 mm. wide, at least the lower nodulose-reticulate, the ribs 0.25 to 0.3 mm. apart: some of the rays of the inflorescence elongate and definite: spikelets dull greenish-brown or rufescent, narrowly ovoid to cylindric, 3.5 to 8 (rarely 10) mm. long, in glomerules of 10 to 30: scales dark brown, orbicular-ovate, abruptly mucronate, 1.5 to 2 mm. long, one-third longer than the achene: bristles sparsely and strongly barbed, nearly straight, as long as the conspicuously pointed and obovoid-oblong trigonous achene.—Meadows and bogs, Montmorency County, Quebec to Saskatchewan, south to Georgia and Missouri. Fruiting in the North in late July and August. Local in New England and adjacent Canada.

Var. **pyncephalus**, n. var. All the rays abbreviated; glomerules crowded in a dense irregular head.—NEW YORK, rich alluvial soil, border of Little Lake, Mohawk flats, 2 miles east of Utica, July 18, 1900 (*J. V. Haberer*, no. 1516a).

S. pallidus (Britton), n. comb. Similar: leaves very pale: spikelets pale brown, very numerous in irregular glomerules: scales elliptic-ovate, 2 to 3 mm. long with the conspicuous pale midribs prolonged into long setulose awns, about twice as long as the achenes.—*S. atrovirens*, var. *pallidus* Britton, Trans. N. Y. Acad. Sci. ix. 14 (1889).—Manitoba to Kansas and the Rocky Mountains.

S. GEORGIANUS Harper. Slender, 3 to 12 dm. high, bright green: leaves smooth, rarely nodulose below, numerous, crowded at base, 0.5 to 1 cm. broad, the ribs 0.15 to 0.2 mm. apart: spikelets 2 to 4 mm. long, numerous in the glomerules: the greenish-brown or rufescent

scales mucronate, 1 to 1.5 mm. long, slightly exceeding the elliptic-oblong achenes: bristles shorter than the achene, very finely setulose, or wanting.— Bull. Torr. Bot. Club, xxvii. 331, t. 22 (1900).— Quebec to Michigan, south to Georgia and Arkansas. Fruiting northward in late June and July. The common plant of New England.

SCIRPUS CYPERINUS (L.) Kunth has been discussed by me in detail¹ and a number of allied species and varieties set off from it. The true *S. cyperinus* with the spikelets all glomerulate has reddish brown involucels, scales and bristles, and occurs from New England to Virginia, Tennessee, and Arkansas, being commonest in the middle Atlantic States. The common representative of *S. cyperinus* in Newfoundland, eastern Canada and northern New England, differs so generally in the color of its involucels and bristles that it is here designated

S. CYPERINUS, var. **pelius**, n. var. Involucels dull brown or drab, with blackish bases: rays elongate the glomerules mostly distinct: bristles drab or smoke-color.— The common extreme northward, occurring generally from Newfoundland to Ontario, south to Connecticut, central New York, and Michigan. The following, from among nearly 100 sheets examined, are characteristic specimens. NEWFOUNDLAND, damp places in woods, Torbay, August 21–26, 1901 (*Howe & Lang*, no. 1438): NOVA SCOTIA, damp places, Halifax Harbor, September 2–6, 1901 (*Howe & Lang*, no. 1481): MAINE, boggy meadow, Cutler, August 29, 1902 — type (*M. L. Fernald*): NEW HAMPSHIRE, marshy places, Alstead, August 9, 1899 (*M. L. Fernald*, no. 323): VERMONT, swales near Bread Loaf Inn, Ripton, September 11, 1899 (*E. Brainerd*): RHODE ISLAND, Cumberland, September 13, 1903 (*J. M. Greenman*, no. 1803): CONNECTICUT, alluvial soil, Selden's Cove, Lyme, July 28, 1902 (*C. H. Bissell*): NEW YORK, upland marshy pasture, 3 miles south of Utica, August 8, 1900 (*J. V. Haberer*, no. 1496): ONTARIO, east of Windsor, July 30, 1901 (*J. Macoun*): MICHIGAN, swamps, Alma, August 30, 1893 (*C. A. Davis*).

RYNCHOSPERA MACROSTACHYA Torr., var. **inundata** (Oakes), n. comb. "Corymbs almost wholly terminal. Clusters loose, few flowered. This variety appears at first sight like a distinct species. Grows in deeper water than the common one, which is the cause of its different appearance. West pond, Plymouth, Mass. Mr. Tuckerman, 1839. The common form is very abundant, at the same locality." Oakes in Hovey's Mag. vii. 185 (1841).—*Ceratoschoenus macro-*

¹ Proc. Am. Acad. xxxiv. 498–501 (1899), & RHODORA, i i 15–16 (1900).

stachys Torr., β *inundatus* Oakes, l. c. *C. macrostachyus*, var. *patulus* Chapm. Fl. 529 (1860). *Rhynchospora corniculata* (Lam.) Gray, var. *patula* Britton, Trans. N. Y. Acad. Sci. xi. 84 (1892). *R. macrostachya*, var. *patula* Chapm. Fl. ed. 3, 556 (1897).

This well known southern plant, reaching its northern limit at Plymouth, has a superficial resemblance to *R. corniculata*, but in its bristle characters it is identical with *R. macrostachya*, which is frequent in the Cape Cod region, and according to Oakes was abundant at the same locality as his original material of var. *inundata*. *R. corniculata* with short stout bristles is unknown, on the other hand, north of Delaware.

SCLERIA PAUCIFLORA Muhl., var. **kansana**, n. var. Very slender and pubescent: each group of tubercles consisting of two uniform ones and a third smaller one.—KANSAS, sandy soil, Cherokee County, 1896 (A. S. Hitchcock, no. 864). Resembling var. *caroliniana* (Willd.) Wood, but differing in the presence of the third small tubercle at each angle of the disk, the angles of *S. pauciflora* and its var. *caroliniana* each bearing 2 distinct uniform tubercles.

CAREX hormathodes, n. name. *C. straminea*, var. *aperta* Boott. Ill. iii. 120, t. 385 (1862). *C. straminea*, var. *tenera* Bailey, Bot. Gaz, x, 381 (1885), & Mem. Torr. Bot. Club, v. 94 (1894); not Boott, Ill. iii. 120, t. 384. *C. tenera*, Britton in Britton & Brown, Ill. Fl. i. 358, fig. 870 (1896); Fernald, Proc. Am. Acad. xxxvii. 474, figs. 31, 32 (1902); not Dewey, Am. Jour. Sci. viii. 97, (1824), & ix. t. c, fig. 9 (1825).

Carey, Boott and some other distinguished students of *Carex* contemporary with Dewey, recognized his *C. tenera* as identical with the plant we now understand as *C. straminea* Willd. (not Schkuhr). Recent authors have, however, considered it as identical with the larger primarily coastal plant with the perigynia about 10 nerved on either face,—the plant described and illustrated by Boott as *C. straminea*, var. *aperta*. The recent accession by the Gray Herbarium of the Carices of the late Chester Dewey has made it possible to gain a clearing though somewhat surprising light upon this subject. Dewey ordinarily indicated his type specimen by "(Mihi)" after the specific name and later, very shortly before his death apparently, he added to the labels the word "original" in a very dark ink. In the cover of *Carex tenera* most of the material is clearly of one species. Two of the plants are indicated by Dewey as the basis of his species. One bears the label "*C. tenera* (Mihi). Sill. Journ. Vol. viii" and the later

"original"; the other is labeled "*C. tenera* D. Saddle Mt. [Williamstown, Massachusetts], June 20" and the usual word "original" added. On other labels of similar plants sent to him by various collectors, — Sartwell, Macoun, and others — Dewey has written "yes," etc. These plants are mostly quite identical with the "original" specimens and the species is clearly the plant which was understood as *C. tenera* by Carey, Francis Boott, and others who had material from Dewey. This plant as already indicated is identified with the Willdenovian *C. straminea*.¹ Thus since the name *C. tenera* Dewey can no longer be applied to the larger plant to which it has recently been transferred, and the name *aperta* applied by Boott to the plant, as a variety of *C. straminea*, is already used in the genus, it becomes necessary to designate the species by some other name; and on account of the usually elongate moniliform inflorescence this coastal plant is here called *C. hormathodes*, of which the following varieties are noteworthy.

C. HORMATHODES, var. **invisa** (W. Boott), n. comb. *C. straminea*, var. *invisa* W. Boott, Bot. Gaz. ix. 86 (1884). *C. tenera*, var. *invisa* Britton in Britton & Brown, Ill. Fl. i. 358 (1896).

C. HORMATHODES, var. **Richii** (Fernald), n. comb. *C. tenera*, var. *Richii* Fernald, Proc. Am. Acad. xxxvii. 475, figs. 33, 34 (1902).

CAREX RETROFLEXA, Muhl., var. **texensis** (Torrey), n. comb. *C. rosea*, γ *texensis* Torr. Ann. Lyc. N. Y. iii. 389 (1836), *nomen nudum*. *C. texensis* Bailey, Mem. Torr. Bot. Club, v. 97 (1894).

C. rosea Schkuhr and its varieties, *radiata* Dewey, and *minor* Boott, have their perigynia with minutely serrulate margins, the scales blunt, and the spikes mostly remote. *C. retroflexa* and its var. *texensis*, on the other hand, have the perigynia with smooth margins, the scales acuminate, and the spikes mostly approximate. In no character do they seem to differ except in the outline of the perigynia, those of *C. retroflexa* being broadly ovoid, of var. *texensis* lance-ovoid to lance-subulate. Though occasional transitional plants occur the two seem to be fairly marked extremes, the variety standing in the same relation to the species as *C. stellulata*, var. *angustata* Carey, *C. interior*, var. *Josselynii* Fernald, *C. granularis*, var. *Haleana* (Olney) Porter, *C. vesicaria*, var. *Raeana* (Boott) Fernald, &c. to the broad-fruited types of their respective species. The occurrence of *C. retroflexa*, var. *texensis* throughout the southern range of the species — from Kentucky

¹ See Fernald, Proc. Am. Acad. xxxvii. 450 (1902).

to Missouri and southward — suggests that it may be found also in the more northern range of the species which extends northward to Massachusetts and southern Ontario.

CAREX SETACEA Dewey, var. **ambigua** (Barratt), n. comb. *C. vulpinoidea*, var. *ambigua* Barratt according to Boott, Ill. iii. 125, t. 406 (1862). *C. xanthocarpa* Bicknell, Bull. Torr. Bot. Club, xxiii. 22 (1896).

This plant was beautifully illustrated by Francis Boott from Connecticut specimens and there can be no question from the plate and notes of the identity of Barratt's *C. vulpinoidea*, var. *ambigua* with Mr. Bicknell's *C. xanthocarpa*. An abundant series of material in the herbarium of Chester Dewey of his own *C. setacea* and of Sartwell's *C. scabrior* shows that while the best *C. setacea* (including *scabrior*) has ordinarily dull brown or drab lanceolate or lance-ovate perigynia tapering gradually to the serrulate beak, many specimens pass very definitely either in color or in the outline of the perigynia to a commoner plant which in its best development has the broad-ovate to orbicular perigynia abruptly short-beaked and often golden-brown in color, the latter character suggesting the name *xanthocarpa*. The transitions between these two extremes are so numerous that it seems to the writer that they are best treated as phases of one plant rather than as distinct species.

(To be continued.)

MEETING OF THE JOSSELYN BOTANICAL SOCIETY.

EDWARD B. CHAMBERLAIN.

THE twelfth annual meeting of the Josselyn Botanical Society of Maine, was held on July 3d to 7th inclusive at Rowe Pond Camps, some ten miles distant from Bingham, Maine. Sixteen members and friends were present at the meetings. During the day, excursions were made to the various ponds, bogs and woodlands in the vicinity, the evenings being devoted to the business meetings of the society. Upon Wednesday evening, Mr. John Murdock, Jr., addressed the society upon the subject of forestry. h/

On the trip to the Camps from Bingham, a short stop was made at Huston Brook Falls, where some of the members explored the limey-slate ledges, finding several interesting plants. Other favorable localities were found along the western shore of Bean Pond, where the dwarf mistletoe was very abundant, and along the stream and "dead-waters" leading from Jewett Pond. The latter place was especially rich in sedges. The following list includes the more important species secured; all localities are in Pleasant Ridge Township, Somerset Co., Maine.

<i>Swartzia montana</i> , Lindb.	<i>Carex oligosperma</i> , Michx.
<i>Splachnum ampullaceum</i> , L.	" <i>pauciflora</i> , Lightf.
<i>Bartramia Ederi</i> , Swartz.	<i>Scirpus occidentalis</i> , Chase.
<i>Hylocomium umbratum</i> , Ehrh.	<i>Corallorhiza multiflora flava</i> , Peck.
<i>Preissia commutata</i> , Nees.	<i>Habenaria bracteata</i> , R. Br.
<i>Equisetum pratense</i> , Ehrh.	<i>Arceuthobium pusillum</i> , Peck.
<i>Carex canescens sublobiacea</i> , Laestad.	<i>Ribes Cynosbati</i> , L.
" <i>Crawfordii</i> , Fernald.	<i>Viola pallens</i> , Banks.
" <i>exilis</i> , Dewey.	" <i>Brainerdii</i> , Greene.
" <i>lenticularis</i> , Michx.	<i>Hippuris vulgaris</i> , L.
" <i>mirabilis tinctoria</i> , Fernald.	<i>Pyrola minor</i> , L.

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